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# EXECUTIVE SUMMARY

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## Purpose of This Report

The Annual Site Environmental Report (ASER) for the West Valley Demonstration Project (WVDP or Project) is published to provide information about environmental conditions at the WVDP to members of the public living near the site and to other interested stakeholders. The WVDP is located in western New York State, about 30 miles (50 kilometers [km]) south of Buffalo, within the New York State-owned Western New York Nuclear Service Center. In accordance with United States (U.S.) Department of Energy (DOE) Order 231.1A, "Environment, Safety, and Health Reporting," this report summarizes calendar year (CY) 2006 environmental monitoring data so as to describe the performance of the WVDP's environmental management system (EMS), confirm compliance with standards and regulations, and highlight important programs. Activities at the WVDP are being conducted in cooperation with the New York State Energy Research and Development Authority.

## Major Site Programs

The WVDP is located on the site of a former commercial nuclear fuel reprocessing plant, which was shut down in 1976. In 1980, Public Law 96-368 (the WVDP Act) was passed. This Act autho-

rized the DOE to demonstrate a method for solidifying 600,000 gallons (2.3 million liters) of liquid high-level radioactive waste (HLW) that remained at the West Valley site. Vitrification of the HLW, begun in 1996, was completed in September 2002. Activities for decontaminating and dismantling the facilities and for managing and disposing of wastes were then initiated and continued through CY 2006. Major activities that occurred in 2006 are described below.

### **The Decommissioning, Decontamination, Dismantlement, and Demolition (D4) Project.**

As part of the D4 project, many obsolete systems and components in the main plant were packaged and shipped off site for disposal. Some of the components were part of the original Nuclear Fuel Services, Inc. reprocessing facility and had not operated in years.

**Environmental Assessment (EA).** In accordance with the National Environmental Policy Act, an EA evaluating the proposed decontamination, demolition, and removal of 36 facilities that are

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*A reader opinion survey has been inserted in this report. If it is missing, please contact the WVDP Communications Department at (716) 942-2152. Additional Project information is available on the internet at <http://www.wv.doe.gov>.*

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(or in the next four years, will be) no longer required to support site activities was issued in September 2006. The DOE issued a Finding Of No Significant Impact (FONSI) based on this EA. Subsequently, several facilities that had already been decontaminated (e.g., the 02 building, the lag storage building, the interim waste storage facility) were demolished and removed.

**Waste Management and Shipping.** In 2006, materials stored in a number of areas on site were sorted, consolidated, recycled, reused, or disposed. Demolition debris, excess items, and legacy radioactive and nonradioactive waste accounted for approximately 225,000 cubic feet (6,400 cubic meters) of industrial and low-level waste (LLW) shipped from the WVDP. That amount, combined with the waste removed from the main plant and other D4 projects on site, brought the total quantity of waste dispositioned in 2006 to about 400,000 cubic feet (11,300 cubic meters).

**The Remote-Handled Waste Facility (RHWF).** The RHWF, although out of service for repairs much of the year, was used to process four mixed waste containers in 2006.

## Key Initiatives

**Environmental Performance Indicators.** In 2006, management at the WVDP continued efforts to meet goals established for the U.S. Environmental Protection Agency's (EPA) National Environmental Performance Track program for the three-year period of CY 2004–2006. The three goals were: (1) elimination of Halon 1301 from fire-suppression systems on site, (2) a 10% reduction in total energy usage, and (3) a 10% reduction in total radiological curies discharged in wastewater. These goals were determined in respect to a 2003 baseline level. The first commitment was completed in 2004. The second goal was met all three years. In 2006, energy usage

was reduced by about 26%. The third commitment was met in 2004 and 2006, although not in 2005. Corrective measures implemented in the latter part of 2005 improved performance and in 2006 total radiological curies were reduced by 13% with respect to baseline.

**Pollution Prevention/Waste Minimization.** In 2006, as part of the site's EMS, a long-term waste minimization and pollution prevention program to promote affirmative procurement and minimize the generation of LLW, mixed waste, hazardous waste, industrial waste, and sanitary waste continued at the WVDP. The program emphasized good business practices, source reduction, and recycling.

## Environmental Management System

The WVDP EMS satisfies the requirements of DOE Order 450.1, "Environmental Protection Program." The WVDP EMS is a key part of the WVDP Integrated Safety Management System (ISMS). In 2006, WVDP employees continued to demonstrate their commitment to an all-inclusive approach to safety, coordinating the EMS with other safety management and work planning processes through the integrated environmental, health, and safety management program.

**Recognition and Awards.** In 2006, the WVDP reaffirmed its commitment to the DOE's Voluntary Protection Program (VPP) and was examined as part of the annual ISMS review. VPP STAR status is granted in recognition of excellent worker safety and health programs. The DOE recertified the WVDP as a DOE-VPP STAR site in 2006.

By year-end 2006, WVDP employees reached 4.58 million safe work hours and more than four years without a lost-time work accident.

**Compliance.** Management at the WVDP continued to provide strong support for environmental compliance in 2006. Requirements and guidance from applicable state and federal statutes, executive orders, DOE orders, and standards are integrated into the Project's compliance program. In CY 2006:

- no notices of violation or inspection findings from any environmental regulatory agencies were received by the WVDP.
- inspections by the New York State Department of Environmental Conservation and the local department of health verified Project compliance with the applicable environmental and health regulations.
- waste management areas at the site were monitored in compliance with the Resource Conservation and Recovery Act §3008(h) Administrative Order on Consent.
- Project representatives met requirements of the Emergency Planning and Community Right-to-Know Act by collecting information about hazardous materials used at the Project and making this information available to the local community.
- no exceedances to State Pollutant Discharge Elimination System (SPDES) permit limits or to the EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) dose standard were noted in 2006.

**Environmental Monitoring.** As part of the EMS, environmental monitoring was continued on and near the site to detect and evaluate changes in the environment resulting from Project (or pre-Project) activities and to assess the effect of any such changes on the environment or human population. Within the environmental monitoring program, airborne and waterborne effluents were sampled and environmental surveillance of the site and nearby areas was conducted.

**Radiological Releases.** In 2006, the WVDP maintained six NESHAP permits for release of airborne emissions. The primary source of airborne radionuclide emissions was the main stack of the process building.

Waterborne releases were from two primary sources: lagoon 3, from which treated water is released in batches, and from a well-characterized seepage on the north plateau of the WVDP that is contaminated with strontium-90 from pre-WVDP operations. Six batches totaling approximately 10.4 million gallons (39.3 million liters) were discharged from lagoon 3 in 2006. Radiological concentrations and flow from north plateau seepage were closely monitored.

**Estimated Dose.** In 2006, the estimated dose to a maximally exposed off-site individual (MEOSI) from airborne emissions at the WVDP was 0.0011 mrem (0.000011 mSv), about 0.01% of the 10 mrem NESHAP standard. Estimated dose from waterborne sources in 2006 was about 0.048 mrem (0.00048 mSv), with 0.012 mrem (0.00012 mSv) attributable to liquid effluent releases and 0.035 mrem (0.00035 mSv) attributable to the north plateau drainage.

Total estimated dose to the MEOSI from both airborne and waterborne sources in 2006 was 0.049 mrem (0.00049 mSv), about 0.049% of the annual 100 mrem DOE standard. In comparison, the average dose to a member of the public from natural background sources is 295 mrem per year.

Estimated dose to the population within a 50-mile (80-km) radius of the WVDP from DOE activities in 2006 was 0.22 person-rem (0.0022 person-Sv). This same population would have received approximately 453,000 person-rem from natural background radiation in 2006.

*Dose to Biota.* An evaluation of dose to biota for CY 2006, as part of the WVDP environmental monitoring program, resulted in the conclusion that populations of aquatic and terrestrial biota (both plants and animals) are not being exposed to doses in excess of the existing DOE dose standard for aquatic animals nor the recommended standards for terrestrial biota.

*Nonradiological Releases.* Nonradiological releases from Project wastewater and storm water monitoring points were measured under the site's SPDES permit. In 2006, no exceedances of any permit limits were noted.

**Groundwater Monitoring and North Plateau Characterization.** Monitoring of groundwater at the WVDP continued in 2006, including monitoring of strontium-90 activity in and around the groundwater plume on the north plateau. In late 2006, the DOE submitted to the New York State Department of Environmental Conservation a draft "Sampling and Analysis Plan for Characterization of the North Plateau Plume Area" and a draft "Sampling Plan for Background Subsurface Soil Data on the North Plateau." These plans propose additional sampling to further characterize and evaluate groundwater and soils in the north plateau strontium-90 plume area.

**Quality Assurance.** In 2006, implementation of a quality assurance program for activities supporting the environmental monitoring and groundwater monitoring programs continued at the WVDP. As part of this ongoing effort, on-site and subcontract laboratories that analyze WVDP environmental samples participated in independent radiological and nonradiological constituent performance evaluation studies. In these studies, test environmental samples with concentrations known by the testing agency, but unknown by the laboratory, were analyzed. Of almost 200 performance evaluation

analyses conducted by or for the WVDP, 97% fell within acceptance limits.

Several inspections, audits, and assessments of components of the environmental monitoring program were conducted in 2006. Although actions were recommended to improve the program, nothing was found that would compromise the data quality in this report or the environmental monitoring program in general.

## **Conclusion**

In addition to demonstrating compliance with environmental regulations and directives, evaluation of data collected in 2006 continued to indicate that WVDP activities pose no threat to public health or safety, or to the environment.